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Dehydrated Alfalfa Meal and Corn-and-Cob Meal in Rations for Growing Glits

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DEHYDRATED ALFALFA MEAL AND CORN-AND-COB MEAL IN RATIONS FOR GROWING GILTS[1,2]

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In the summer of 1958 this experiment station initiated experiments to study the effects of adding dehydrated alfalfa meal to rations for confinement reared pigs and their subsequent reproductive performance. The results of the first experiment suggested the addition of alfalfa in growing-finishing rations and in gestation rations was beneficial (Swine Day Report No. 2, 1960). Since that experiment was conducted with a limited number of females it was felt more research was needed to determine the value of alfalfa meal in growing-finishing, gestation and lactation rations. The following experiment was designed with these objectives:

(a) Further study the effects of dehydrated alfalfa meal (0,2.5, 5.0 or 10.0%) in rations for growing females to breeding age and their subsequent reproductive performance.

(b) Evaluate replacing shelled corn with ground ear corn for the growing female pig.

Only the growing phase of this experiment is reported. Some of these gilts will farrow their first litters in the spring of 1962.

Experimental Procedure

Forty-eight purebred female pigs were divided into 8 lots. The pigs were allotted according to breed, litter, weight, and general conformation. The complete mixed rations shown in table 1 were self-fed. Each alfalfa level was replicated. Pigs in replicate I were fed the shelled corn ration and pigs in replicate II were given the ground ear corn ration. Ear corn was ground through a 3/8 inch screen. The gilts were confined to an 8 x 8 foot inside pen and an outside 8 x 12 foot feeding slab.

Results and Discussion

Table 2 summarizes the results of this experiment. Alfalfa meal in the rations had little effect on the performance of pigs. An exception may have been that pigs required more feed per pound of gain when fed the ear corn - 10% alfalfa meal ration It is difficult to explain why pigs fed the shelled corn - 5% alfalfa ration consumed about one pound less feed daily than pigs in the other lots of this replication. These pigs also gained at a somewhat slower rate but were more efficient in feed conversion. Pigs fed the control shelled corn ration gained 7% faster than pigs fed 2.5 or 5.0% alfalfa. However, pigs fed the high alfalfa ration gained as fast as the control pigs. These results differ from those reported in a previous trial (Swine Report No. 2, 1960) where a slight increase in gain was obtained with 2.5 and 5% alfalfa and a decrease with 10% alfalfa. An interesting change in growth response was observed on lots of pigs fed corn-and-cob meal rations. Pigs fed 2.5 or 5.0% alfalfa gained approximately 9% faster than the control-fed or high alfalfa-fed pigs.

1 Supported in part by a grant from the American Dehydrators Association.
2 Certain ration ingredients were supplied by Merck and Co., Rahway, New Jersey, American Cyanamid Co., Princeton, New Jersey, Eli Lilly and Co., Greenfield, Indiana, and Nopco Chemical Co., Newark, New Jersey.

TABLE 1 COMPOSITION OF RATIONS[1]

Ingredient	Lot Nunber							
	1	2	3	4	5	6	7	8
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Shelled corn, gr.	787	773	758	719	---	---	---	---
Ear corn, gr.[2]	---	---	---	---	757	742	727	690
Alfalfa meal (17%)	---	25	50	100	---	25	50	100
Soybean meal (44%)	185	175	166	157	215	206	197	186
Dicalcium Phosphate	10	10	10	10	10	10	10	10
Limestone	10	9	8	6	10	9	8	6
T.M. salt, hi zn.	5	5	5	5	5	5	5	5
Premix[3]	3	3	3	3	3	3	3	3

[1] These 16% crude protein grower rations were fed until pigs reached approximately 100 pounds body weight; thereafter the grain and soybean meal were adjusted to provide a 12 percent protein ration. Hygromix was excluded in the finisher ration.

[2] Ground through a 3/8 inch screen.

[3] Premix provided 1 mg. of riboflavin, 2 mg. of pantothenic acid, 4.5 mg. of niacin, 5 mg. of choline, 5 mcg. of vitamin B_{12}, 900 USP units of vitamin A, 115 USP units of vitamin D, 7.5 mg. of chlortetracycline, and 6 mg. of Hygromix 8 per pound of ration.

Substitution of corn-and-cob meal for the shelled corn ration greatly slowed daily gains, decreased feed consumption and increased feed required per pound of gain. The experiment was stopped when these pigs averaged 169 pounds. Some pigs gained rather well on these rations, while others responded poorly. The poor feed efficiency was due to the lower energy content of the rations and considerable feed wastage.

Several gilts from the corn-and-cob ration lots weighted less than 200 pounds at the time of breeding. They lacked growth, capacity, and the thrifty appearance that is considered desirable in breeding gilts. Therefore, in this experiment substitution of ear corn for shelled corn did not appear to be practical for weanling growing gilts.

TABLE 2 RESULTS OF CORN VS. CORN-AND-COB MEAL RATIONS WITH DIFFERENT LEVELS OF ALFALFA MEAL FOR GROWING GILTS

Lot No.[1]		1	2	3	4	
Alfalfa content, %		0	2.5	5.0	10.0	
No. pigs, both replicates		12	12	12	12	
Av. initial wt., lb.	Rep I[1]	49.4	49.5	49.5	49.5	
	Rep II	49.5	49.4	49.5	49.4	
Av. final wt., lb.	Rep I	208	198	196	207	Av. 202
	Rep II	163	173	178	161	169
Av. daily gain, lb.	Rep I	1.62	1.52	1.50	1.60	1.56
	Rep II	1.16	1.26	1.30	1.14	1.22
	Av.	1.39	1.39	1.40	1.37	
Av. daily feed, lb.	Rep I	6.16	6.11	5.19	6.16	5.90
	Rep II	5.13	5.61	5.78	5.83	5.59
	Av.	5.64	5.86	5.48	5.99	
Av. feed per lb. gain, lb.	Rep I	3.80	4.02	3.46	3.85	3.78
	Rep II	4.42	4.45	4.45	5.10	4.60
	Av.	4.11	4.23	3.96	4.48	

[1] Rep I Shelled corn, ground
Rep II Ground ear corn